rectal chlamydia infections. The pharmacokinetic properties of azithromycin may also contribute to the development of macrolide resistance in other STIs including gonorrhoea and *Mycoplasma genitalium*. It has extensive tissue distribution with the majority of the drug confined to the intracellular space. After entering the acidic compartments of cells, it becomes trapped leading to its slow release from the tissues contributing to its long half-life. While this is effective for treating chlamydia, the long half-life results in sub-inhibitory levels in the extracellular space, potentially contributing to the development of macrolide resistance in other organisms. This is particularly an issue when new infections are acquired during the two weeks following azithromycin treatment when sub inhibitory concentrations exist. This presentation will discuss how the pharmacokinetic properties of azithromycin affect its efficacy for treating chlamydia infections and whether it should have an ongoing role as part of a dual treatment regimen with ceftriaxone for gonorrhoea infections.

Disclosure No significant relationships.

S13.2 SHOULD ENTERIC INFECTIONS IN MSM ALWAYS BE TREATED?

Mark Pakianathan*. *St George's University Hospital Foundation Trust, HIV and Sexual Health, London, UK*

10.1136/sextrans-2019-sti.62

Sexual transmitted enteric infections (STeIs) have been well recognised in gay, bisexual and other men who have sex with men (GBMSM) for over three decades. This presentation will initially provide an overview of the range of enteric pathogens with propensity for sexual transmission in this population.

There has been a recent increase in the numbers of outbreaks of enteric infections reported affecting this population in particular with shigella species and Hepatitis A. These have occurred across borders reflecting internationally mobile GBMSM networks. Recently, multi-drug antimicrobial resistance (AMR) in strains of *Shigella sonnei* circulating amongst GBMSM in England and USA have been identified challenging standard treatment approaches. The epidemiology of some of these outbreaks, the emergence of AMR and public health responses will be discussed. Outbreaks of shigella have been linked to HIV status and parallel epidemics of gonorrhoea (also linked with AMR), syphilis and Lymphogranuloma venereum in this population of GBMSM.

Whilst the majority of shigella infections in GBMSM will be self-limiting, contextual and clinical factors may lower the threshold for antimicrobial treatment. The presentation highlights some of these challenges and dilemmas in clinical management particularly in the face of co-infection with STIs, the emergence of AMR and syndemic health inequalities such as problematic chemsex (use of psychoactive substances with sex).

The presentation will conclude with research gaps, implications for policy on STeIs and emphasize the need for partnership working across public health, microbiology and relevant frontline clinical services. The need for management approaches that are holistic and consider wider syndemic health needs when managing patients will also be highlighted.

Disclosure No significant relationships.

S13.3 DO RECTAL BACTERIAL STIS IN WOMEN MATTER? WHO SHOULD WE TEST AND WHEN?

Christine Khosropour*. *University of Washington, Epidemiology, Seattle, USA*

10.1136/sextrans-2019-sti.63

Rectal bacterial STIs are increasingly recognized as common infections among clinic-attending women, with estimated prevalences of 5% for rectal *Neisseria gonorrhoeae* (GC) and 9% for rectal *Chlamydia trachomatis* (CT). Although these prevalences are similar to urogenital GC and CT among these same populations of women, we know very little about the health implications or epidemiology of rectal STIs among women. Rectal STIs are typically asymptomatic and the infections themselves may not be morbid conditions. However, some investigators have hypothesized that women could autoinoculate bacteria from the rectum to the vagina which may result in reproductive tract sequelae in the absence of vaginal sex. Even if there were strong evidence to suggest this does occur, it is unclear which populations of women should be targeted for rectal screening. Employing current screening guidelines for urogenital infections would assure treatment of women with concurrent rectal STI, but would miss women with isolated rectal STI. Further, the efficacy of azithromycin for CT may be lower in the rectum than the urogenital tract, suggesting that screening and treating women for urogenital CT without regard to the presence of rectal CT may result in a persistent rectal infection. Alternatively, rectal STI screening could be limited to women who report anal sex. However, the prevalence of rectal STIs is similar among women who do and do not report anal sex, suggesting that this screening strategy would miss a substantial proportion of cases. Finally, some have hypothesized that oral acquisition of CT may lead to rectal infection. If this route is possible, rectal screening for women who report penile-oral sex may be warranted. This session will review the epidemiologic and microbiologic evidence on these topics and will discuss what studies are needed to address the gaps in our understanding of these infections and define a way forward.

Disclosure No significant relationships.

S13.4 HPV VACCINATION IN MSM: WHO SHOULD BE VACCINATED AND IS THERE A ROLE FOR VACCINATION OF OLDER AND/OR HIV-POSITIVE MSM IN PREVENTING INITIAL, PERSISTENT AND RECURRENT HPV AND RELATED DISEASES?

David Templeton*. *RPA Sexual Health, Sydney, Australia*

10.1136/sextrans-2019-sti.64

Background Anogenital infection with human papillomavirus (HPV) disproportionately affects men who have sex with men (MSM), especially those living with HIV. It remains unclear whether HPV vaccination of older MSM and/or MSM living with HIV is beneficial in terms of preventing new HPV infections, reinfections with the same HPV subtype, new diagnoses or recurrence of HPV-related lesions or anal cancer.

Results HPV16 causes most anal squamous cell cancer worldwide. However, other high-risk HPV (hrHPV) types contained in the 9-valent vaccine (9vHPVvax) cause a substantial minority of anal cancers in HIV-positive MSM. In the landmark

quadrivalent HPV vaccination (qHPVvax) randomised controlled trial in MSM aged 16–26 years, qHPVvax significantly reduced the risk of anal warts, persistent anal HPV infection and anal precancerous lesions. An RCT of qHPVvax among HIV-positive individuals aged over 26 years was stopped early due to futility, largely due to lack of statistical power. Current evidence suggests little benefit of vaccination for established HPV infections. Nonetheless, qHPVvax has been shown to be safe and highly immunogenic among older HIV-positive MSM. Findings from cohort studies suggest potential benefits of vaccination beyond 26 years of age. Among HIV-negative MSM (median age 35), HPV16 seroincidence did not decline until after 35 years of age. A cohort of HIV-negative and HIV-positive MSM (median age 49) found anal HPV16 was only detected in one-third of men at baseline, and acquisition of new 9vHPVvax types occurred at a rate of almost 20 per 100 person-years. A similar-aged cohort of HIV-positive MSM suggested potential protection of almost 30% of participants against acquisition of new hrHPV types contained in the 9vHPVvax.

Conclusion Despite a lack of evidence of HPV vaccine efficacy in older/HIV-positive MSM, some existing data theoretically support a role of vaccination. Further studies are required to confirm whether any benefit exists.

Disclosure No significant relationships.

S14 – SEXUAL NETWORKS AND STI TRANSMISSION: FROM MODELLING TO PRACTICE

Tuesday, July 16, 2019 4:15 PM – 5:45 PM

S14.1 SEXUAL CONTACT NETWORKS, STI TRANSMISSION AND THE EFFECTIVENESS OF INTERVENTIONS: INSIGHTS FROM MATHEMATICAL MODELLING

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10.1136/sextrans-2019-sti.65

Sexual contact networks are a key determinant for the spread of sexually transmitted infections (STIs). The impact of different sexual contact structures on the effectiveness of interventions is not always well understood. Mathematical modelling provides an excellent tool to study the interrelationship between sexual contact networks, STI transmission and intervention effectiveness. We use deterministic, population-based as well as stochastic, individual-based transmission models to study the effects of control interventions against *Chlamydia trachomatis* and *Neisseria gonorrhoeae*. We illustrate that an accurate description of heterosexual contact networks is critical to evaluate the effectiveness of screening and partner notification strategies against chlamydia. We further analyse antibiotic resistance surveillance data to estimate the rates at which antibiotic-resistant *N. gonorrhoeae* spread in heterosexual men (HetM) and men who have sex with men (MSM). Interestingly, we can show that antibiotic-resistant *N.*

gonorrhoeae spread faster with more treatment, not more sexual partners. The effectiveness of control interventions for an STI strongly depend on the life history of the disease and the underlying sexual contact structure.

Disclosure No significant relationships.

S14.2 USE OF WHOLE GENOME SEQUENCING TO EXPLORE TRANSMISSION BETWEEN SEXUAL NETWORKS IN AN STI OUTBREAK

Helen Fifer*. *Public Health England, National Infection Service, London, UK*

10.1136/sextrans-2019-sti.66

Whole genome sequencing (WGS) is increasingly being used to describe the molecular epidemiology of *Neisseria gonorrhoeae* at a population level, mainly as part of national surveillance programmes or research studies. Recently, Public Health England has used WGS as part of outbreak investigations to understand the spread of resistant *N. gonorrhoeae*, and inform public health interventions in real-time. The benefits and difficulties of this approach will be explored.

Disclosure No significant relationships.

S14.3 MAXIMIZING THE ACCEPTABILITY, FEASIBILITY AND VALIDITY OF SEXUAL NETWORK STUDIES: LESSONS FROM THE FIELD

Abigail Norris Turner*. *Ohio State University, Internal Medicine, Infectious Diseases, Columbus, USA*

10.1136/sextrans-2019-sti.67

Network studies are an increasingly important source of evidence explaining the movement of sexually transmitted infections (STIs) through at-risk populations. This design type complements traditional epidemiological measures by incorporating spatial and temporal data about people's social and sexual connections to evaluate the spread of STIs. This applied presentation describes the speaker's experience initiating a multi-site sexual network study of syphilis transmission among men who have sex with men (MSM) in an LGBTQ-friendly Midwestern US city. She discusses challenges and field-tested solutions specific to chain-referral network studies across multiple domains, including: 1. ethical review, which required extensive education of IRB members and changes to local IRB policy prior to approval; 2. feasibility and acceptability, which required community engagement and sensitization to assuage participant concerns about confidentiality in the use of peer referrals and with the enumeration of sexual partners using modified identifiers; and, 3. data capture, including management challenges inherent to tracking sexual partners and behaviors over time, in the context of changing relationships (e.g., evolution and devolution of relationships from anonymous to casual to primary to dissolved to reinitiated), changing disease exposure, and use of a smartphone app to capture inter-visit behavioral risk data. She describes strategies used prior to and after study initiation to develop, maintain and enhance relationships with the target community, and future